Available online at www.sciencedirect.com

ScienceDirect

Procedia Social and Behavioral Sciences 9 (2010) 633–637

Procedia Social and Behavioral Sciences

WCLTA 2010

Effect of teacher's coaching in online discussion forums on students' perceived self-efficacy for the educational software development

Halil İbrahim Akyüz [a] *, Mehmet Kurt [b]

[a] *Ankara University, Instutue of Educational Science,Ankara,06590,Turkey*
[b] *Ankara University, Faculty of Educational Science,Ankara,06590,Turkey*

Abstract

Purpose of this study was to determine the effect of teacher's coaching in online discussion forums on Students' Perceived self-efficacy for the Educational Software Development. Pretest-posttest control grouped experimental design has been used in the study. The study group consisted of students studying at third grade in Ankara University Faculty of Educational Sciences, Department of Computer Education and Instructional Technologies in the spring term of 2009–2010 academic year. The study includes two groups; an experimental and a control group. Both Groups were instructed by blended learning method. The experimental group was coached by the course instructor in online discussion forums and the control group wasn't coached, but to participate in online discussions among themselves. Within this context, in order to determine the levels of educational software development process towards self-efficacy. software development process towards self-efficacy was administered before and after the instruction as a pre-test and post-test. Paired samples and independent groups t-test was used to analyze the data. There was a statistically meaningful significance between result of the software development self-efficacy pre-test and post-test scores of both group, When the the post-test and pre-test scores of the differences were compared, whereas a meaningful significance was not found. Results of the study, blended learning environment implemented in the discussion provided in the coaching of the students educational software development self-efficacy, a significant effect not been seen, but blended learning environment on students' educational software development self-efficacy, a significant effect was observed.

Keywords: Design and production of Multimedia, educational software development process towards self-efficacy;

1. Introduction

Educational software development project is the group work. Can not be expected to be accomplished by one person. Because it arises as a result of team work. Computer Education and Instructional Technology Department students with the educational software development should be equipped with knowledge and skills. Therefore the use of multi-media design courses students must take part in this purpose is one of the required courses. Students graduate, they are part of ICT in primary schools were appointed as teachers or as formatters, or still in the private sector in national ministries of education materials in various environments are employed in development work.

* Halil İbrahim Akyüz. Tel.:+9-0312-363-33-50 fax: +9-0312-363-61-45
E-mail address: hiakyuz@education.ankara.edu.tr

1877-0428
doi:10.1016/j.sbspro.2010.12.209

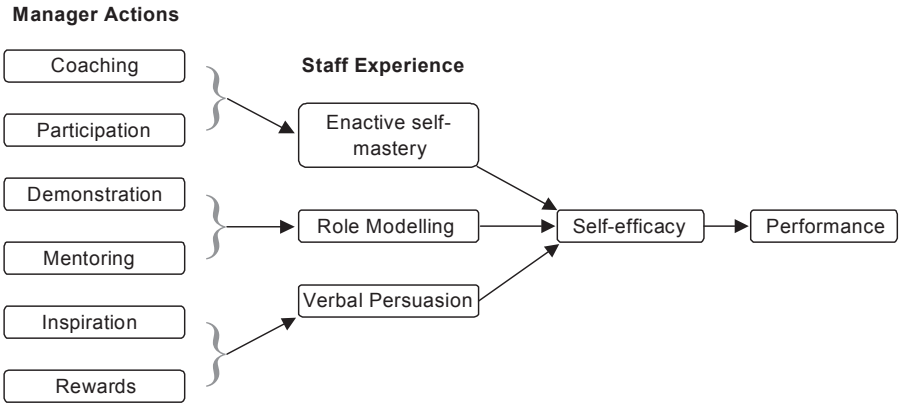
Self-efficacy is defined in terms of individuals's perceived capabilities to attain designated type of performances and achieve specific result by bandura (1986). Although self-efficacy as a general case to be made varies according to the work and mission. Therefore, the self-sufficiency should be specific to a particular situation. (Aşkar & Dönmez, 2004).

Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Gumuseli, A., & Hacifazlioglu, O. 2009). Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes. (Bandura, 1994).

People will be more inclined to take on a task if they believe they can succeed. People generally avoid tasks where their self-efficacy is low, but will engage in tasks where their self-efficacy is high (Özdamlı, F. 2009). People with a self-efficacy significantly beyond their actual ability often overestimate their ability to complete tasks, which can lead to difficulties. On the other hand, people with a self-efficacy significantly lower than their ability are unlikely to grow and expand their skills. Research shows that the 'optimum' level of self-efficacy is a little above ability, which encourages people to tackle challenging tasks and gain valuable experience. (Bandura, Guide For Constructing Self-Efficacy Scales., 2006).

Self-efficacy beliefs have also received increasing attention in education. Much research shows that self-efficacy influences academic motivation, learning, and achievement (Pajares, 1996; Schunk, 1995).

Heslin and Klehe (2006) defined three key sources of self-efficacy. The most powerful determinant of self-efficacy is enactive self-mastery, followed by role-modelling, and then verbal persuasion. ***Enactive self-mastery*** is achieved when people experience success at performing at least portions of a task. It serves to convince them that they have what it takes to achieve increasingly difficult accomplishments of a similar kind. Role-modelling occurs when people observe others perform a task that they are attempting to learn, or vividly visualize themselves performing successfully. ***Role-modelling*** can provide people with ideas about how they could perform certain tasks and inspire their confidence that they can act in a similarly successful manner. ***Verbal persuasion*** builds self-efficacy when respected managers encourage and praise individuals for their competence and ability to improve their effectiveness. Positive self-talk can also raise self-efficacy. Regardless of its source, verbal persuasion is most likely to increase self-efficacy when it is perceived as credible and emphasises how success results from devoting sufficient effort to mastering acquirable skills, rather than depending upon inherent talent. Efficacy-raising feedback highlights how consistent efforts have enabled substantial improvements, as well as the progress made, rather than involving peer comparisons or making reference to how far individuals have to go until their ultimate objective is achieved. (Heslin & Klehe, 2006).



Source: (Heslin & Klehe, 2006).

Figure 1: Source of Self-Efficacy

According to Heslin and Klehe (2006), Self-Efficacy can be improved with coaching, participation, demonstrate, Mentoring, inspiration and Rewards.

Coaching can be defined as a technique used to guide associates and terms to achive results; to help others strengthen specific knowledge/skills or to help to someone accomplish a task or solve a problem. (Martin, 2010). There are many techniques, styles and approaches available for the coaching discussion.

Software development processes of education must provide the students with knowledge and practice of Educational Software development. Educational software development processes includes requirements about process architecture, team orientation, project life cycle, standards and practices, student support and instructor support(Filho, 2001).

However, the majority of teachers/instructors/mentors offer students the resources as simple documents of text. These educational resources should not be made available in this way, but, where possible, be accompanied with other "media" becoming more effective and appealing - Guaranteeing aquality education with that, allows the teacher to choose the best strategies both at the level of methodology of teaching learning and at the level of iteration and students' motivation. One of the difficulties faced by the tutors is that the author tools available in the markets, e.g. director, Flash, and Toolbook, require some knowledge of computers and are not easy to work. (Reis, 2007).

2. Propose of Study

This study aim to investigate the effect of teacher's coaching in online discussion forums on Students' Perceived self-efficacy for the Educational Software Development.

3. Metedology

3.1. Study Group

The study group consisted of 44 students (Male:33, Female:11) studying at third grade in Ankara University Faculty of Educational Sciences, Department of Computer Education and Instructional Technologies in the spring term of 2009–2010 academic year. 44 Students were randomized into control and experiment groups.

3.2. Instrument

Self –efficacy Scale For educational Software development has been developed by Aşkar and Donmez (2004). Scale consist of four factors and there are totally 22 items in the scale. It yield four factors, namely, project management and instructional design, animation and sound-video design, graphics design and programming. The reliability of the scale scores estimated by using Croanbach alfa was ,92. Every item are scored by 0 to 100 by inviduals.(0 indicates I don't trust, 100; I very Trust).

3.3. Procedure

In the study, pretest-posttest control grouped experimental design carried out with a sample of 44 participants (23 experimental group and 21 control group). The application was conducted in the education of computer and Instructional technologies and Desing and production of Multimedia courses. At the beginning of the semester, self-efficacy scale for educational software development was administered as pre-test to the candidate of Computer teachers. Both groups were enrolled in "Blended Learning" environment. Study was conducted 12 weeks. Self-efficacy scale for educational software development was administered as post test following to the applications. The

experimental group was coached by the course instructor in online discussion forums and the control group wasn't coached, but to participate in online discussions among themselves. Each candidate of Computer teachers filled the scale and evaluated their self-efficacy perceptions. At the end of the semester the pre test and post test results were compared.

3.4. Data Analysis

After experiment and control group take points related to pre test and post test, the students' group numbers in each group are less then thirty. It is tested by applying "2 related Samples" from nonparametric tests if there is a significant difference about arithmetic average of the pre test and post test points of the students in each group.

4. Findings

4.1. Pretest Findings

As displayed in Table 1, there was no significant difference in student pretest SESESD based on group. The pretest SESESD scores for control group (M =1237,17) and experimental group (M = 1278,29) did not differ significantly (p > .944).

Table 1. Mann-Whitney U analysis for Prettest Mean Rank.

Groups	N	Mean Rank	Mann-Whitney U	p
Control Group	23	22,37	238,50	0,944
Experimental Group	21	22,64		

4.2. Posttest Findings

As displayed in Table 2, there was no significant difference in student posttest SESESD based on group. The posttest SESESD scores for control group (M =1741,91) and experimental group (M = 1804,52) did not differ significantly (p > .231).

Table 2. Mann-Whitney U analysis for Posttest Mean Rank

Groups	N	Mean Rank	Mann-Whitney U	p
Control Group	23	20,28	190,50	0,231
Experimental Group	21	24,93		

4.3. Posttest-pretest SESED Differences

4.3.1. Posttest-pretest SESED Differences For Control group

As a result of comparing control group pretest with post test All of the participants (n=23) who take low point in pretest and take high point in posttest.

Table 3. Wilcoxon Signed Ranks Test for Control Group

		N	Mean Rank	Z-value	p
Pretest- Posttest	Negative Ranks	0	0	-4,198	0,000
	Positive Ranks	23	12,00		
	Ties	0			

As a result of analysis p degree comes out 0,000 and since it is p<0,05, it means there is a significant difference. This difference is indicator for that without coaching discussion forum in blended learning environment is effective for the control group student.

4.3.2. Posttest-pretest SESED Differences For Experimental Group

As a result of comparing experimental group pretest with post test All of the participants (n=21) who take low point in pretest and take high point in posttest.

Table 4. Wilcoxon Signed Ranks Test for Experimental Group

		N	Mean Rank	Z-value	P
Pretest- Posttest	Negative Ranks	0	0	-4,015	0,000
	Positive Ranks	21	11,00		
	Ties	0			

As a result of analysis p degree comes out 0,000 and since it is p<0,05, it means there is a significant difference. This difference is indicator for that coaching discussion forum in blended learning environment is effective for the experimental group student.

5. Conclusion and Discussion

As a result of analyses in control group and experimental groups it is determined that there is improvement of Perception of Self-efficacy for Educational Software Development. Posttest scores of control and experimental group isn't difference so it can said easily blended learning environment is positive effect for perceived of self efficacy for educational software development. But online discussion forum with coaching and without coaching isn't differ significantly.

I respect of these results, it is clear to see that online discussion forum with coaching didn't influence on students' perceived of self efficacy for educational software development but online discussions forum influenced. Students to participate in online discussions activities increase their perceived of self efficacy for educational software development.

References

Aşkar, P., & Dönmez, O. (2004). Eğitim yazılımı Geliştirme Öz-Yeterlik Algısı Ölçeği. *Eğitim Bilimleri ve Uygulama , 3* (6), 259-274.

Bandura, A. (2006). Guide For Constructing Self-Efficacy Scales. F. Pajares, & T. Urdan in, *Self-efficacy and Adolescents* (p. 307-337). USA: Information Age Publishing.

Bandura, A. (1994). Self-efficacy. V. S. Ramachaudran içinde, *Encyclopedia of human behavior* (p. 71-81). San Diego: academic Press.

Bandura, A. (1986). *Social Foundadtions of thought and Action: A Social Cognitive Theory.* New Jersey: Prentice-Hall.

Filho, W. P. (2001). Requirements for an educational software development process. *Proceedings of the 6th annual conference on Innovation and Technology in Computer Science Education* (p. 65 - 68). United Kingdom : ACM.

Heslin, P. A., & Klehe, U. C. (2006). Self-Efficacy. S. G. Rogelberg in, *Encyclopedia Of Industrial / Organizational Psychology* (Volume 2, p. 705-708). Thousand Oaks: Sage.

Martin, P (2010). Coaching Discussion Aproach. Retrieved 01.09.2010 from Resource: http://edweb.sdsu.edu/people/ARossett/pie/Interventions/coaching_2.htm

Pajares, F. (1996) Self-efficacy Beliefs in Academic Settings. Review of Educational Research, 66, 543-578.

Reis, R. M. (2007). Development of Educational Software. *Internatıonal Journal Of Educatıon And Informatıon Technologıes , 3* (1), 167-171.

Shuttleworth, M. (2009). Pretest-Posttest Designs. Retrieved 01.09.2010 from Experiment Resources: http://www.experiment-resources.com/pretest-posttest-designs.html avaliable

Schunk, D. H. (1994) Self-regulation of Self-efficacy and Attributions in Academic Settings. In D. H. Schunk & B. J. Zimmerman (Eds.), Self-regulation of Learning and Performance: Issues and Educational Implications (Hillsdale, NJ: Erlbaum); 75-99.

Gumuseli, A., & Hacifazlioglu, O. (2009). Globalization and Conflict Management in Schools. Cypriot Journal of Educational Sciences, 4(3), 183-198.

Özdamlı, F. (2009). A cultural adaptation study of multimedia course materials forum to Turkish. World Journal On Educational Technology, 1(1). 3045.